

## ABSTRACT

Techniques, methods, and structures disclosed in relation to extreme ultraviolet (EUV) lithography in semiconductor processing. In one exemplary implementation, a method may comprise using ion beam deposition to deposit a first multilayer stack of thin  
5 films on a substrate to planarize and smooth surface defects on the substrate. The method includes using atomic layer deposition to deposit a second multilayer stack of thin films on the first multilayer stack of thin films. The second multilayer stack of thin films may comprise an extreme ultraviolet reflective multilayer stack. The second multilayer stack of thin films may comprise fewer surface defects than the first multilayer stack of thin films.  
10 The method may further comprise processing an extreme ultraviolet mask blank to form an extreme ultraviolet reflective mask.

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